

Amendments to the Specification

Please amend the paragraph beginning at page 1, line 6 as follows:

The contents of co-pending, co-owned U. S. ~~Serial No. 10/023,058, filed December 13,~~
~~2001~~ Patent No. 6,772,906, and co-owned U. S. Patent No. 6,540,102; is each incorporated by
reference in its entirety.

Please amend the paragraph beginning at page 2, line 15 as follows:

Some of these issues are described in more detail in U.S. ~~Serial No. 10/023,058~~ Patent
No. 6,772,906, incorporated by reference herein. These issues are well-known in the art. If a
vending machine could vend, customer satisfaction would increase. It would likely decrease
instances of vandalism by disgruntled customers. It could also improve inventory/accounting
data collection, which can be useful for the owners of the machines or the manufacturers of the
vendible items.

Please amend the paragraph beginning at page 11, line 21 as follows:

The exemplary embodiment of the invention will also be described in the context of a
vending machine having a master controller board 34 which has programming adapted to work in
conjunction with the vend sensing system of the exemplary embodiment. In particular, the
master controller board can include programming which tries to ensure a vend takes place in
response to an authorized vend selection. This program or regimen is described in co-pending,
incorporated by reference U. S. ~~Serial No. 10/023,058~~ Patent No. 6,772,906. The regimen can
rely upon a vend sensor for part of its methodology. For example, the regimen can rely on a
signal from a vend sensor to make an assumption about whether or not a product was dispensed.

If the vend sensor does not send a signal indicative of confirmation of a successful vend, the regimen can instruct operation of another full or partial vend cycle to try to provide the customer with at least one selected product. However, it is to be understood that the regimen of ~~Serial No. 10/023,058~~ U.S. Patent No. 6,772,906 is not required for use with the present invention, and conversely, the vend sensor apparatus and method of the present invention are not required to be used with the regimen described in ~~Serial No. 10/023,058~~ U.S. Patent No. 6,772,906. The regimen of ~~Serial No. 10/023,058~~ U.S. Patent No. 6,772,906 will be used for illustration only in the example of the invention below.

Please amend the paragraph beginning at page 21, line 19 as follows:

As indicated at steps **226**, **228**, and **236**, so long as the relay count stays greater than 0 (step **226**), the program decrements the relay count (step **234**) and returns to the beginning of the main loop (step **206**), but leaves the output signal on or in the "blocked" state. Thus, so long as a detector is malfunctioning or indicates blockage, the circuit output will be turned on. Essentially, in either case, the circuit reports an "error" condition. The master controller board will interpret it as an item has vended, and, if the regimen of ~~Serial No. 10/023,058~~ U.S. Patent No. 6,772,906 is used by master control board **34**, will not try to keep vending until released from that state.

Please amend the paragraph beginning at page 23, line 15 as follows:

For example, as indicated at **Figure 5**, if any detector **U** does detect relevant IR energy during the all-emitters-off time period, microprocessor generates the output signal at output **90** which pulls the output **91** low as an indication that something is wrong with the hardware. This function is realized as a failsafe or cautionary procedure. The system assumes there is a problem

if a detector **U** indicates receipt of IR during the time all emitters **D** are off. This checks the "health" of detector elements **U**, primarily testing if a detector has failed in an "on" state. Also, it can catch if someone is "spoofing" the vending machine with a remote control IR source. As will become clearer below, without this function, a malfunctioning detector **U** might indicate it is receiving IR energy from an emitter, when in fact it is not. Essentially, the vend sensor would miss any vended item and would fail to inform master controller board **34** if a product dispenses to the dispensing area, when in fact it has actually been delivered. This is problematic because under the vending regimen of ~~Serial No. 10/023,058~~ U.S. Patent No. 6,772,906, master controller board **34** would mistakenly try to dispense. This may result in dispensation of a second item, when the customer has already received the item.

Please amend the paragraph beginning at page 25, line 19 as follows:

First, if all detectors **U** passed the detector test of steps **206/208/210** and all the detectors **U** are on during steps **222/224**, indicating each detector "sees" the emitter that is on, microprocessor **30** checks the relay count (step **226**). Under this condition, the relay count is 0 (zero). It has not changed from its initialized value. The output line will not be activated (step **236**). During this first pass through the main loop of **Figure 5**, the vend sensor indicates that (a) all detectors appear to functioning correctly, and (b) nothing has blocked any detector.

Therefore, the vend sensor does not pass any indication that a vend has occurred to the master controller. Under the regimen of ~~serial number 10/023,058~~ U.S. Patent No. 6,772,906, if a vend has been authorized, the master controller will wait a while to see if the vend sensor indicates a vend has occurred during the next iteration of the main loop.

Please amend the paragraph beginning at page 26, line 8 as follows:

Second, if all detectors **U** passed the detector test of steps **206/208/210** but all the detectors **U** are not on during steps **222/224**, microprocessor **30** turns the output line on (step **232**) and sets the timer (the relay count) to the equivalent of the 150 ms period (step **234**). This creates the indication that at least one detector does not "see" the emitter that is on and makes the assumption it was the result of a vended item blocking that (those) detector(s). Microprocessor **30** then checks the relay count (step **226**) and will find it is greater than 0 (zero). During this first pass through the main loop of **Figure 5**, and under this second condition, the vend sensor indicates that (a) all detectors appear to functioning correctly, and (b) the selected item has been vended. And, by turning the output line on or active, the vend sensor passes the indication that a vend has occurred to the master controller. Under the regimen of ~~serial number 10/023,058~~ U.S. Patent No. 6,772,906, the master controller will discontinue any further attempt to vend an item and reset for the next vend instruction. Before, returning to the main loop, the relay count is decremented by the pre-set amount (step **228**).

Please amend the paragraph beginning at page 26, line 22 as follows:

Third, if any detector **U** did not pass the detector test of steps **206/208/210**, microprocessor **30** still checks whether or not all the detectors **U** are on during steps **222/224**. Assuming, under this third condition, that all detectors are indicated to be on during the period of time emitter **D2** is on, microprocessor checks the relay count (step **226**). However, under this third condition, the relay count has been set to its 150 ms equivalent at step **212** because of the malfunction of a detector. Therefore, even though all detectors appear to "see" emitter **D2** when it is on at step **224**, the output line has been turned on for **150** ms at step **212** and the relay count

is greater than zero. As a result, the output line will remain activated (it will not be turned off) but the relay count will be decremented (step **228**). The master controller does not differentiate between a detector malfunction at steps **210/212** and an indicated blockage at steps **224/232**. The regimen of ~~serial number 10/023,058~~ U.S. Patent No. 6,772,906 simply sees the output line high and discontinues any attempt to continue to vend from that dispensing mechanism, for the reasons discussed previously.

Please amend the paragraph beginning at page 27, line 11 as follows:

Fourth, if any detector **U** does not pass the detector test of steps **206/208/210**, microprocessor **30** will immediately turn the output line on and set the timer to the 150 ms value (by setting the relay count). Microprocessor **30** still checks whether or not all the detectors **U** are on during steps **222/224**. Assuming, under this fourth condition, that one or more detectors are indicated to be off during the period of time emitter **D2** is on, microprocessor leaves the output line on (step **232**) and resets (or retriggers) the timer to its 150 ms equivalent. Microprocessor then checks the relay count (step **226**). Under this fourth condition, the relay count was been set to its 150 ms at preceding step **212** because of the malfunction of a detector, and again at step **234** because of an indicated blockage of one or more detectors. Therefore, the relay count is greater than zero. As a result, the output line is activated but the relay count will be decremented (step **228**). Again, the master controller does not differentiate between a detector malfunction at steps **210/212** and an indicated blockage at steps **224/232**. The regimen of ~~serial number 10/023,058~~ U.S. Patent No. 6,772,906 simply sees the output line active and discontinues any attempt to continue to vend from that dispensing mechanism, for the reasons discussed previously.

Please amend the paragraph beginning at page 32, line 3 as follows:

The detection field consists of the array of infrared light beams from emitters **D**. The infrared detectors **U** are intended to detect when a product falls through the detection field and interrupts at least one of the light beams. If the main controller board **34** attempts to dispense an item, and the delivery sensor system does not detect it falling through its detection field, then the absence of a signal from the delivery sensor will show that the item failed to vend. When this happens, the master controller will make a second attempt to vend the item. Thus, the algorithm in co-pending ~~Serial No. 10/023,058~~ U.S. Patent No. 6,772,906 kicks in.